FIG. 1

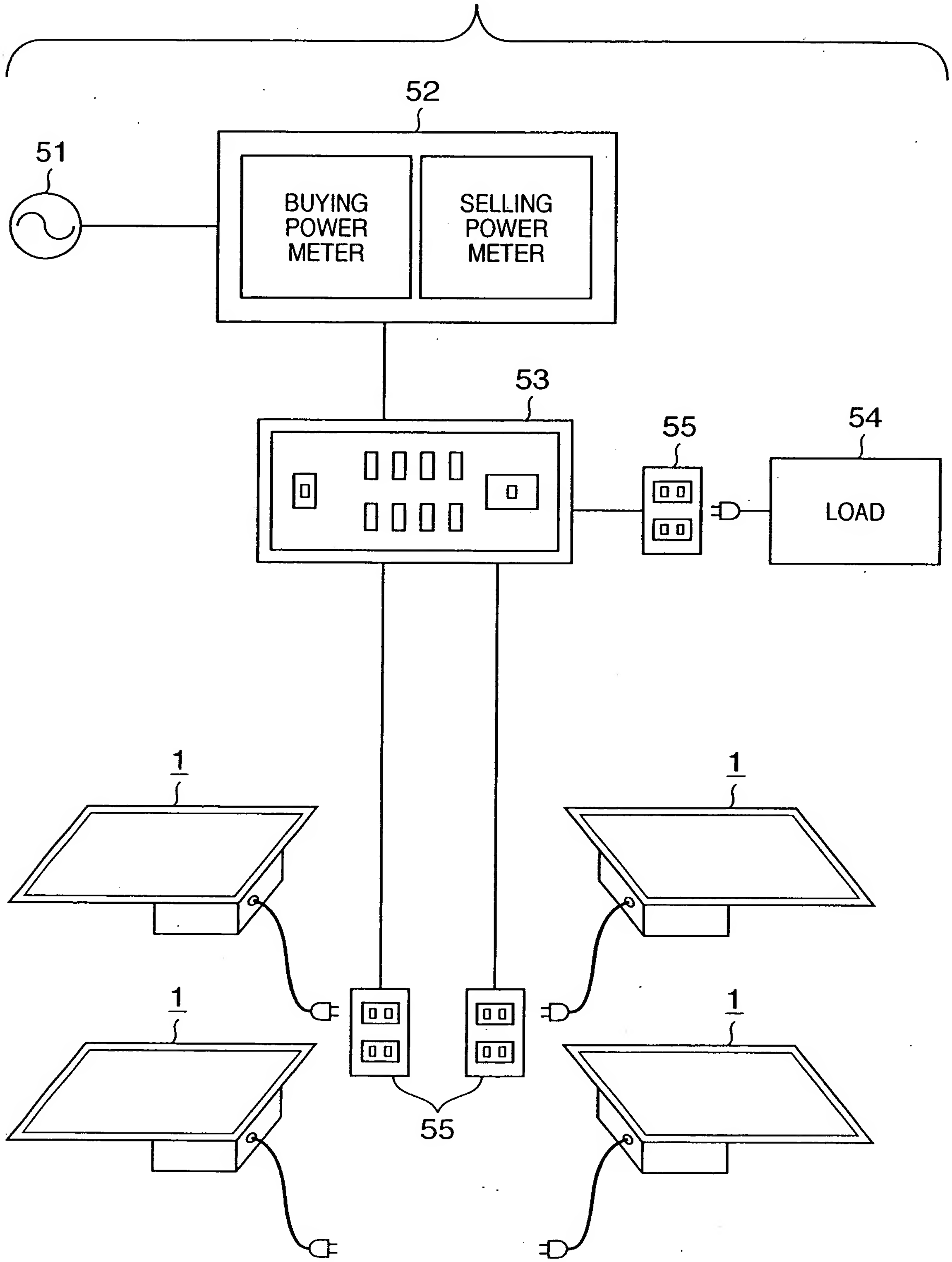

52
51
BUYING POWER METER
SELLING POWER METER
53
55
54
LOAD
1
1
1
1
55

FIG. 2

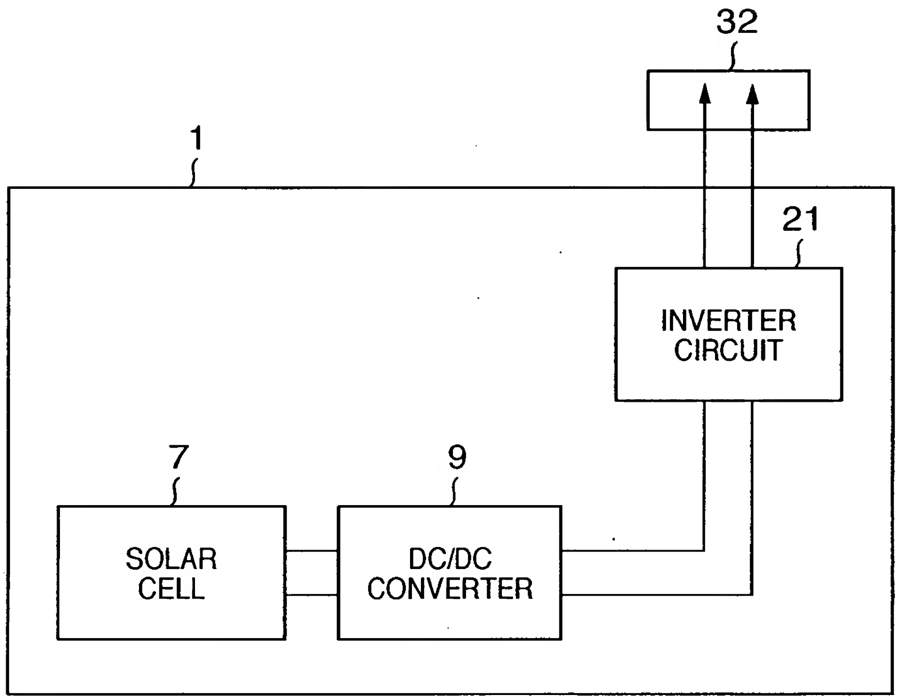


FIG. 3

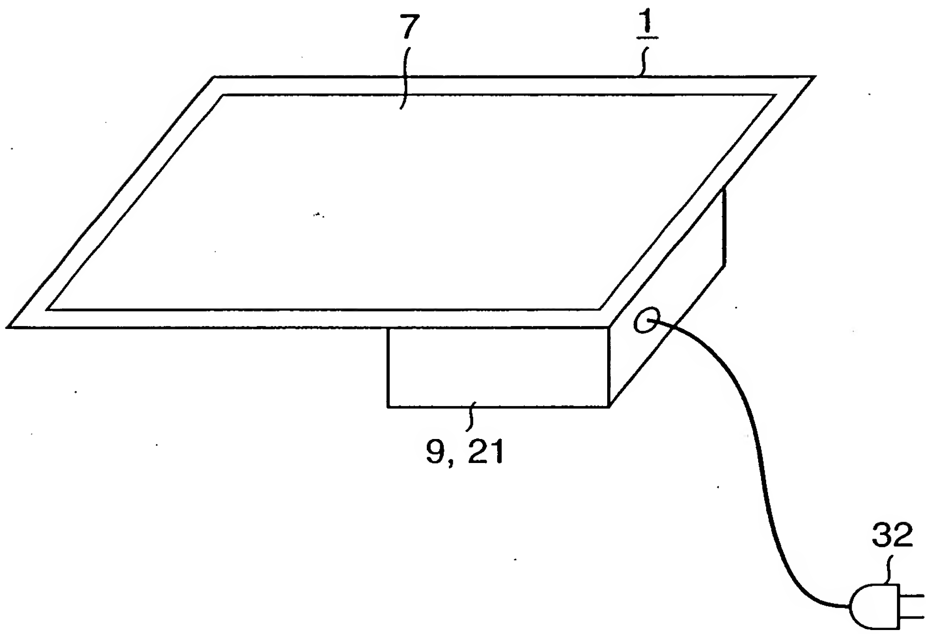


FIG. 4

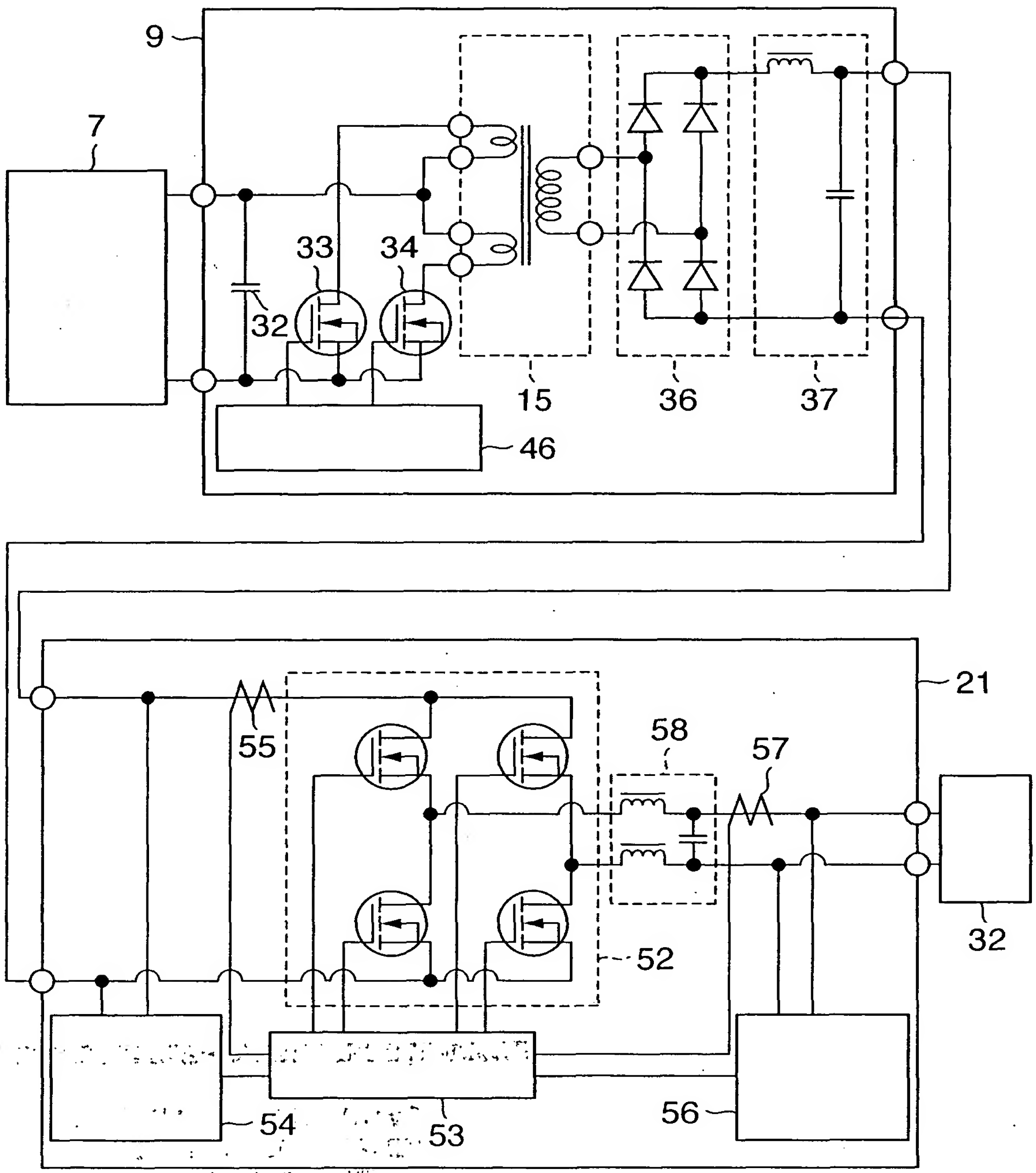


FIG. 5

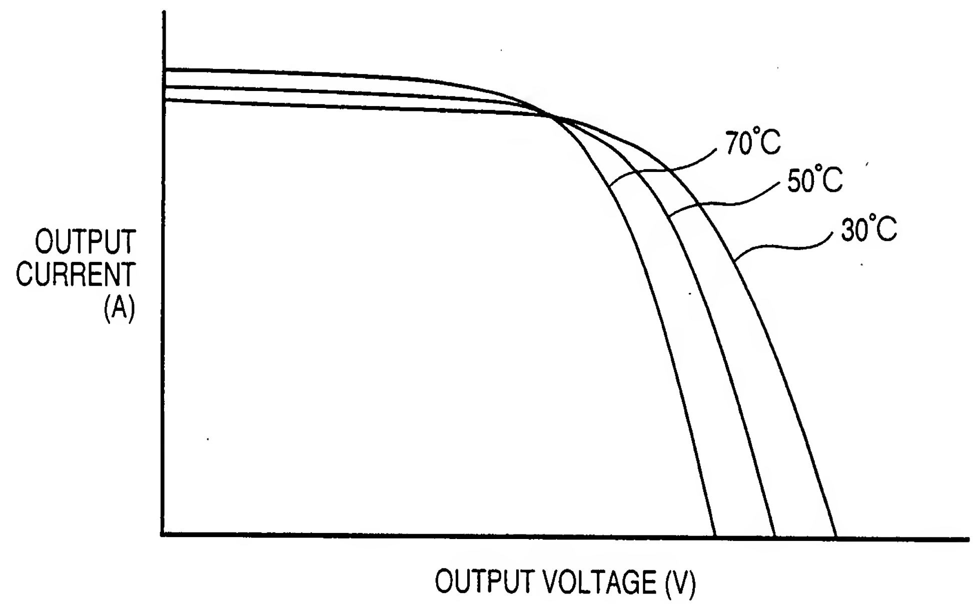


FIG. 6

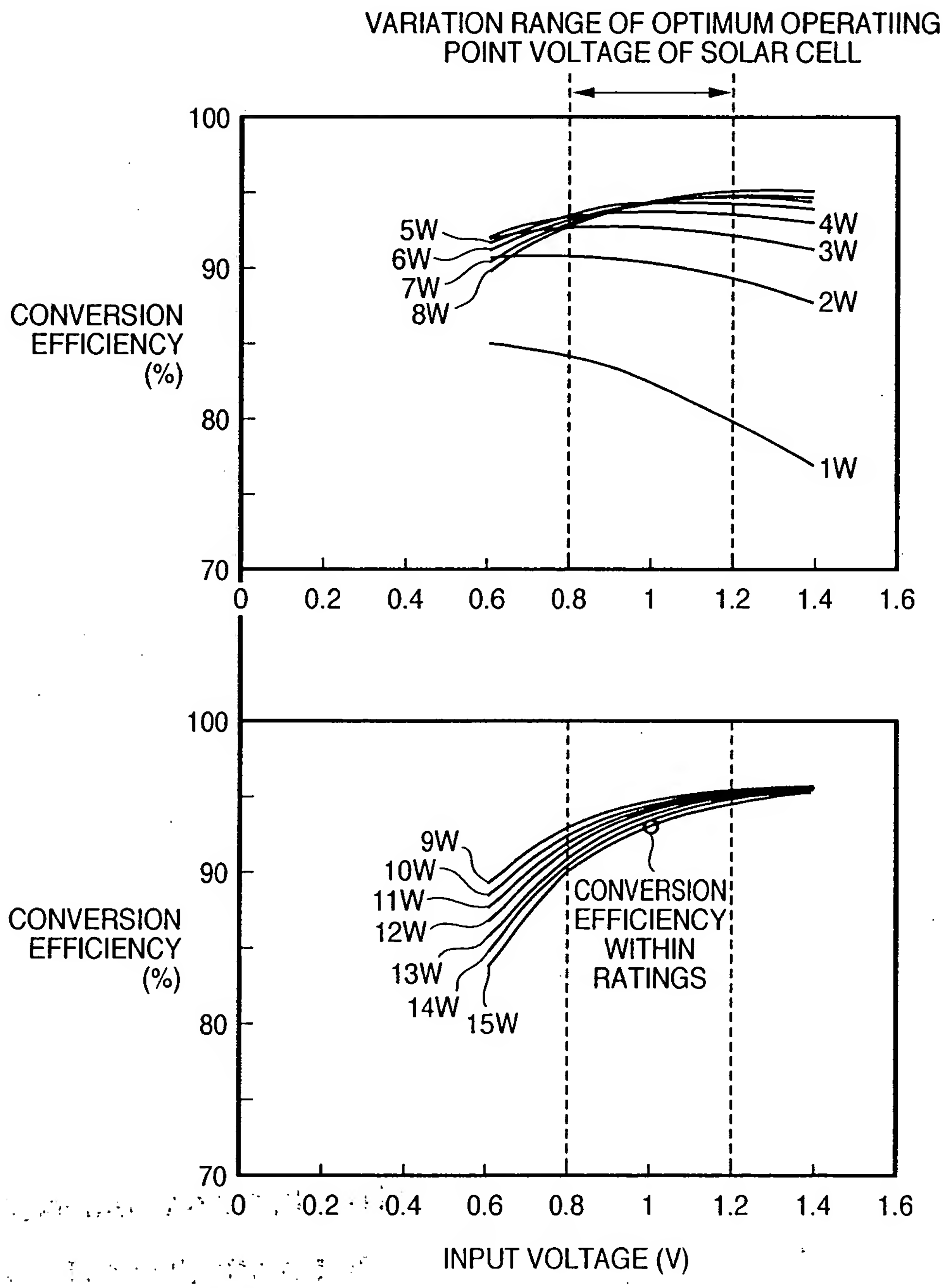

VARIATION RANGE OF OPTIMUM OPERATIING POINT VOLTAGE OF SOLAR CELL
CONVERSION EFFICIENCY (%)
100
90
80
70
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1W
2W
3W
4W
5W
6W
7W
8W
9W
10W
11W
12W
13W
14W
15W
CONVERSION EFFICIENCY WITHIN RATINGS
INPUT VOLTAGE (V)

FIG. 7

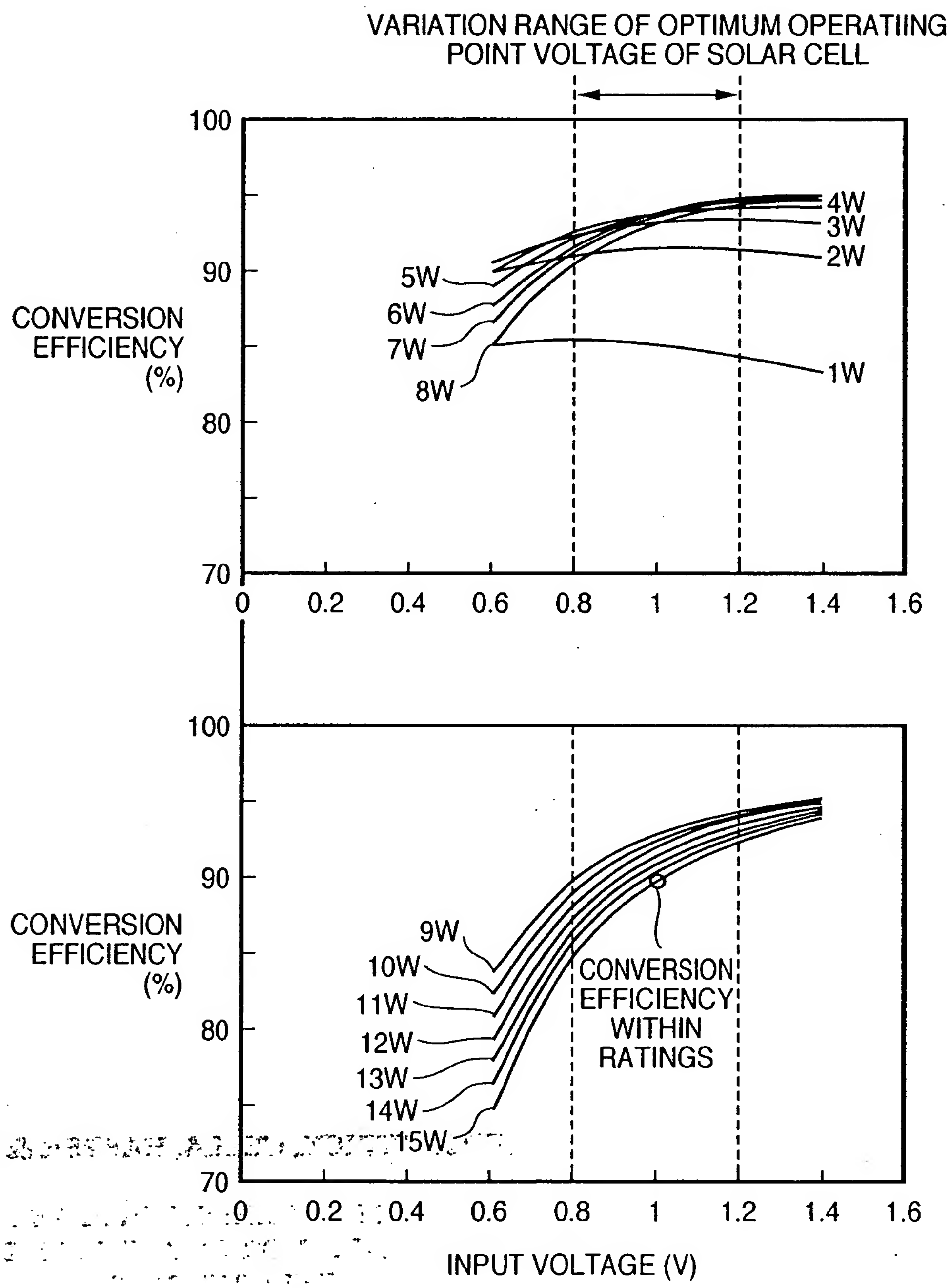

VARIATION RANGE OF OPTIMUM OPERATIING POINT VOLTAGE OF SOLAR CELL
CONVERSION EFFICIENCY (%)
100
90
80
70
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1W
2W
3W
4W
5W
6W
7W
8W
9W
10W
11W
12W
13W
14W
15W
CONVERSION EFFICIENCY WITHIN RATINGS
INPUT VOLTAGE (V)

FIG. 8

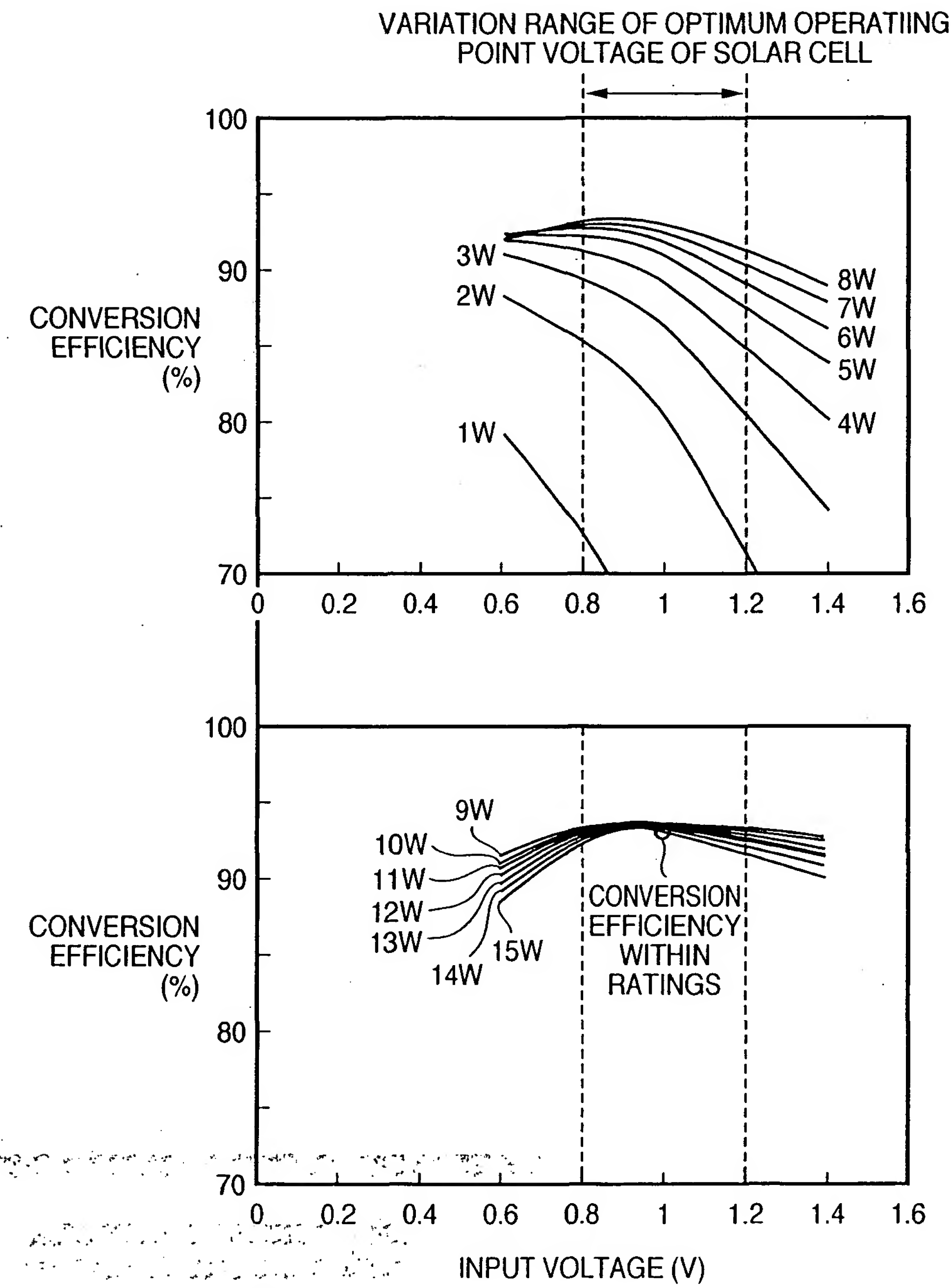
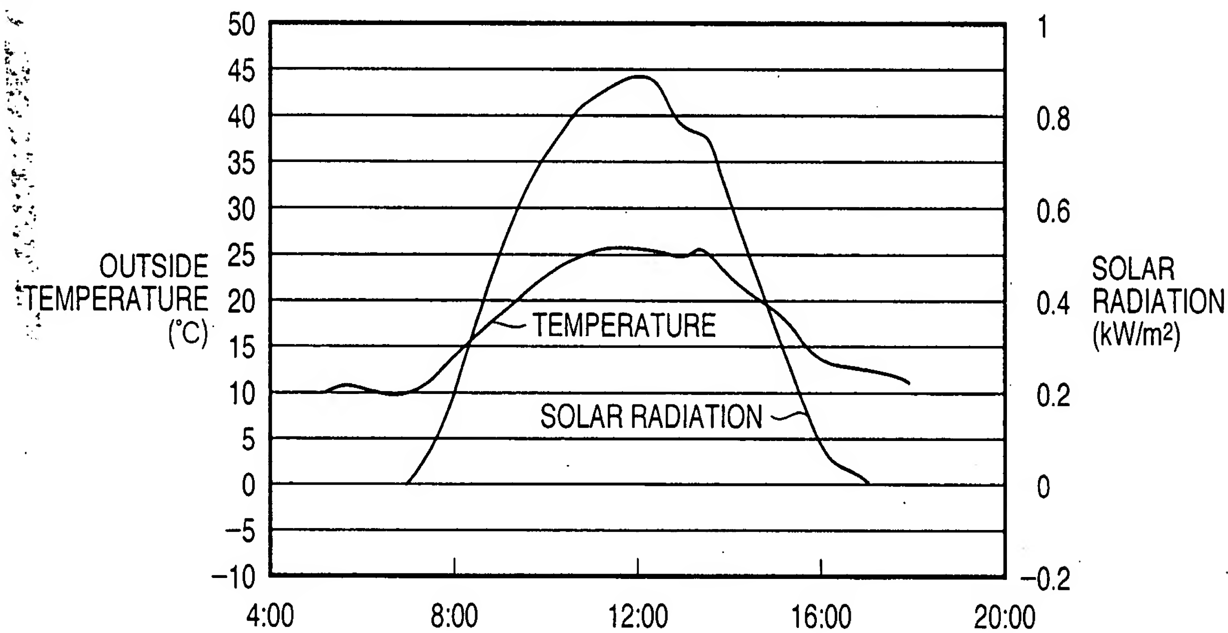

VARIATION RANGE OF OPTIMUM OPERATIING
POINT VOLTAGE OF SOLAR CELL
CONVERSION
EFFICIENCY
(%)
100
90
80
70
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1W
2W
3W
4W
5W
6W
7W
8W
9W
10W
11W
12W
13W
14W
15W
CONVERSION
EFFICIENCY
WITHIN
RATINGS
INPUT VOLTAGE (V)

FIG. 9



OUTSIDE TEMPERATURE (°C)
50
45
40
35
30
25
20
15
10
5
0
−5
−10
4:00
8:00
12:00
16:00
20:00
1
0.8
0.6
0.4
0.2
0
−0.2
SOLAR RADIATION (kW/m²)
TEMPERATURE
SOLAR RADIATION

FIG. 10

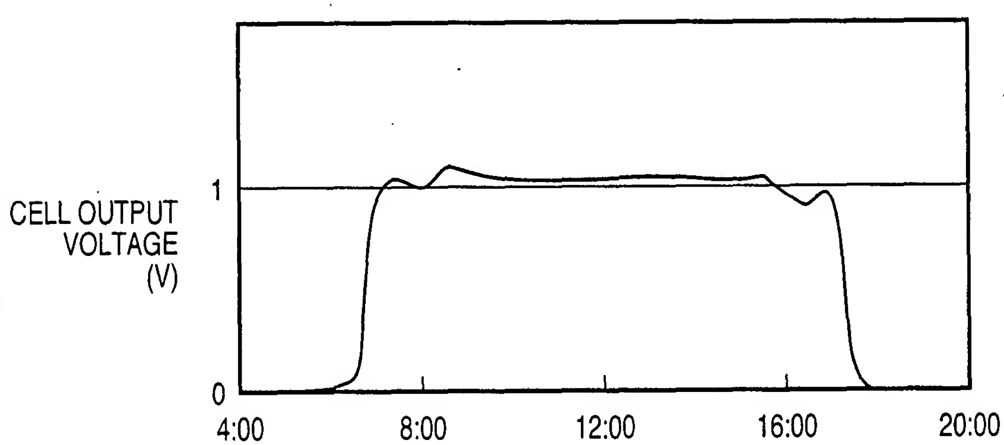


FIG. 11

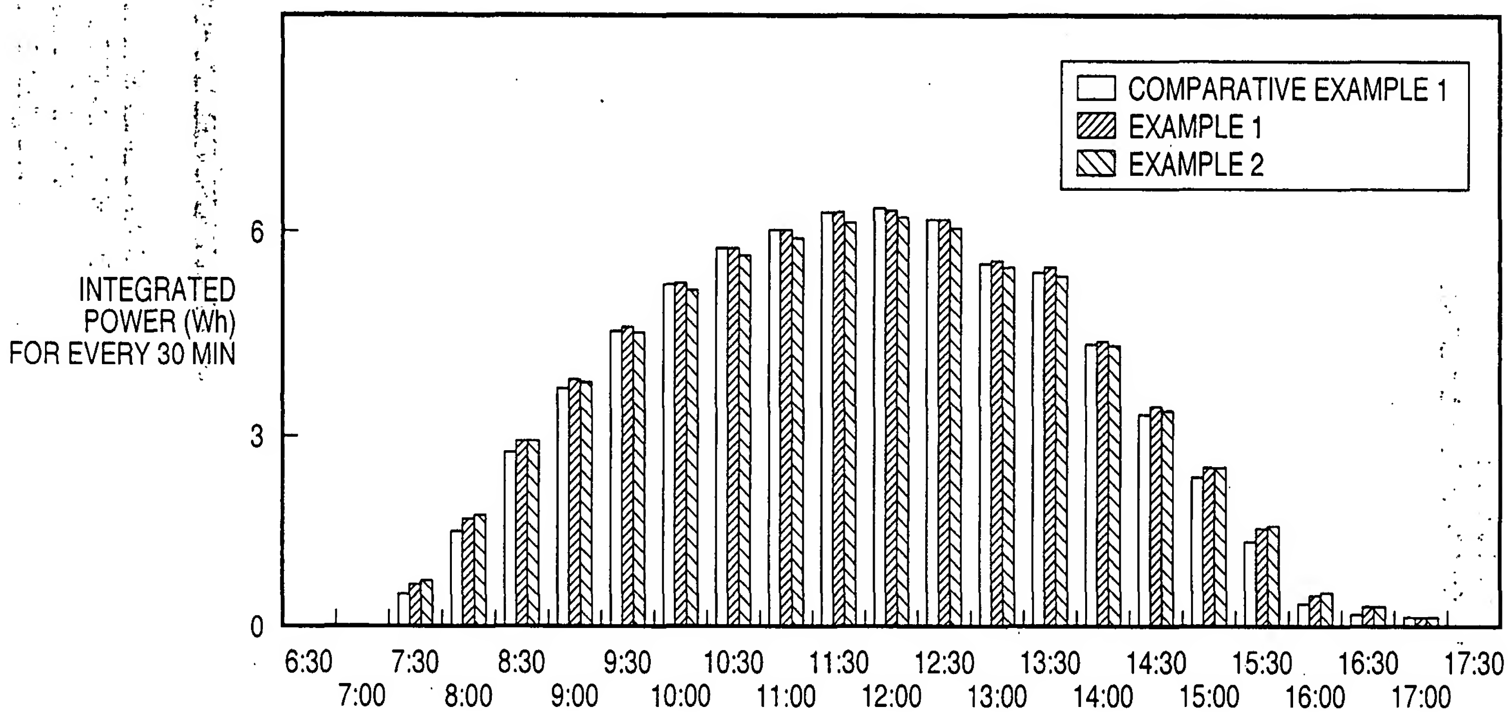
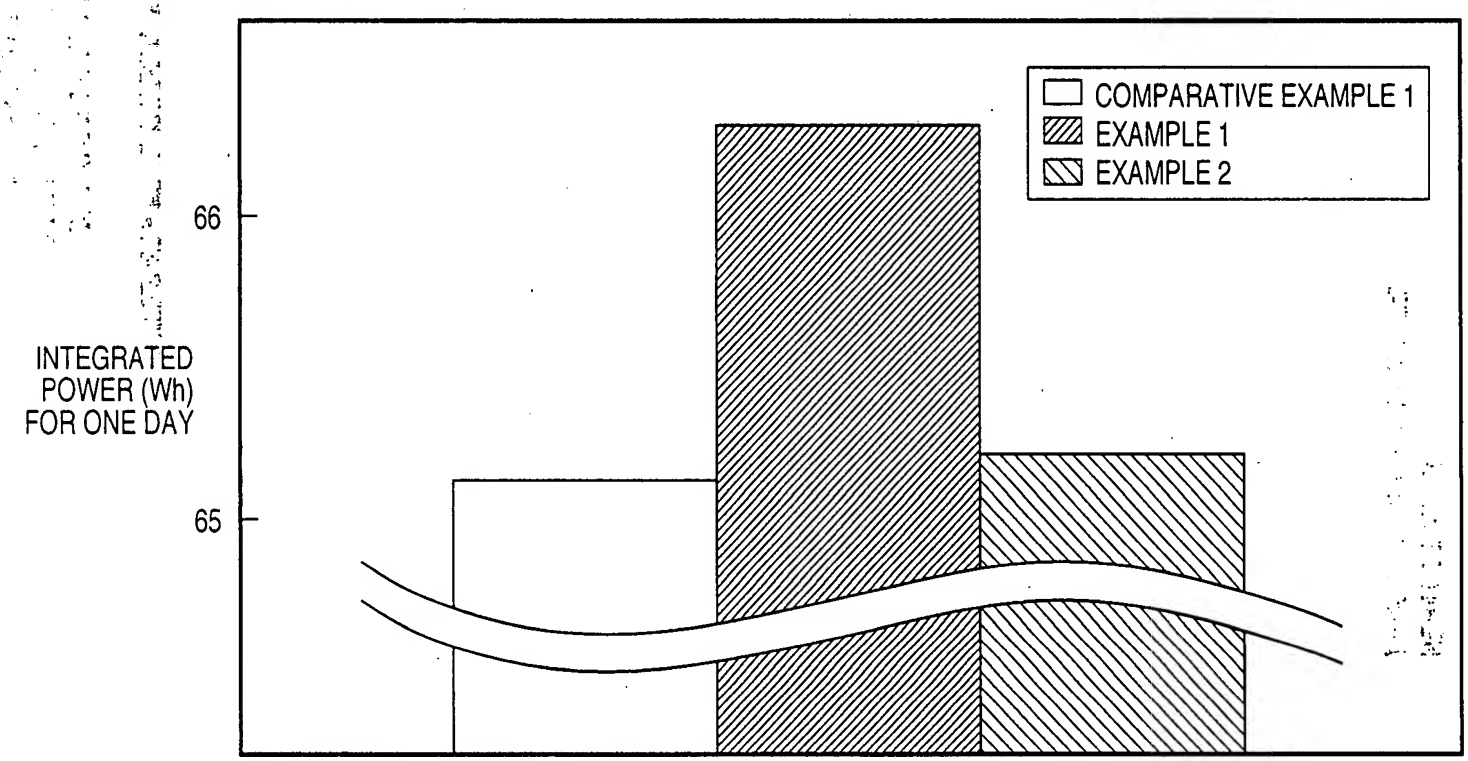

COMPARATIVE EXAMPLE 1
EXAMPLE 1
EXAMPLE 2
INTEGRATED POWER (Wh) FOR EVERY 30 MIN
0
3
6
6:30
7:00
7:30
8:00
8:30
9:00
9:30
10:00
10:30
11:00
11:30
12:00
12:30
13:00
13:30
14:00
14:30
15:00
15:30
16:00
16:30
17:00
17:30

FIG. 12


INTEGRATED
POWER (Wh)
FOR ONE DAY
66
65
COMPARATIVE EXAMPLE 1
EXAMPLE 1
EXAMPLE 2

F I G. 13

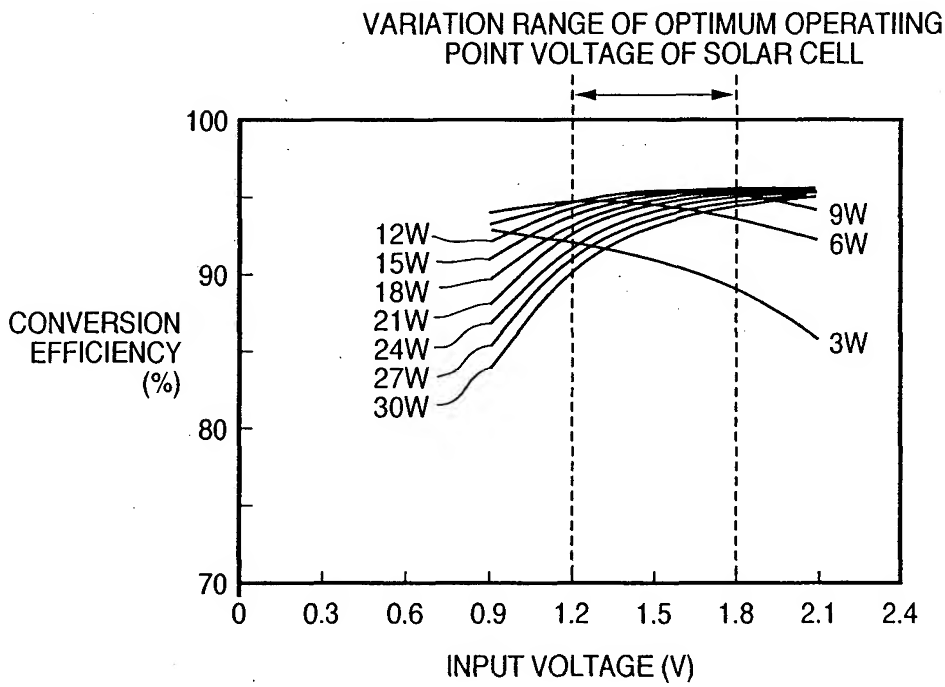
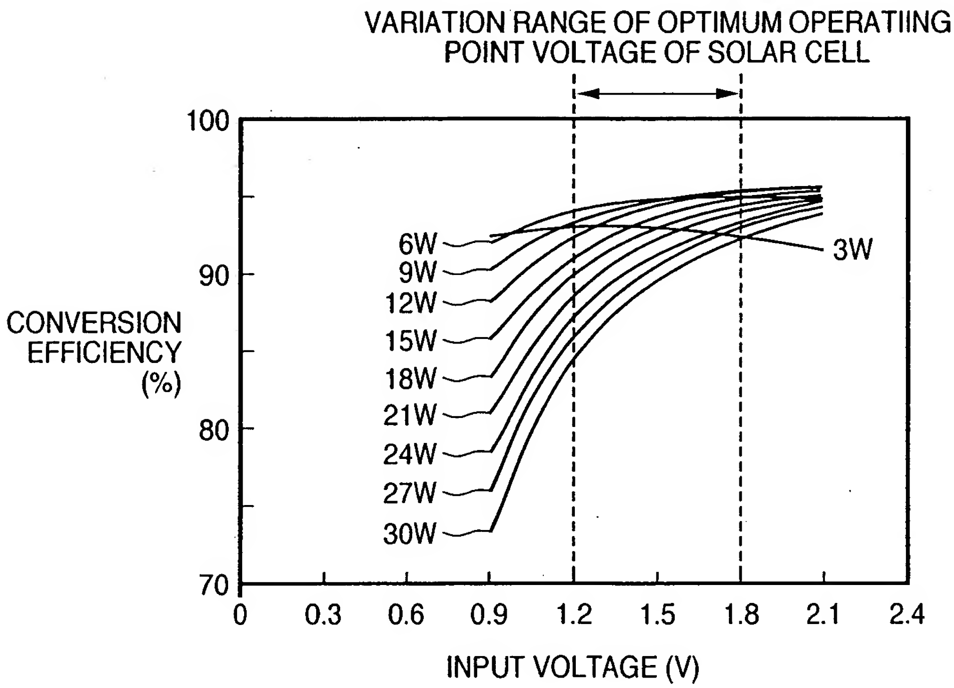

VARIATION RANGE OF OPTIMUM OPERATIING
POINT VOLTAGE OF SOLAR CELL
CONVERSION
EFFICIENCY
(%)
100
90
80
70
12W
15W
18W
21W
24W
27W
30W
9W
6W
3W
0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
INPUT VOLTAGE (V)

FIG. 14


VARIATION RANGE OF OPTIMUM OPERATIING POINT VOLTAGE OF SOLAR CELL
100
90
80
70
CONVERSION EFFICIENCY (%)
6W
9W
12W
15W
18W
21W
24W
27W
30W
3W
0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
INPUT VOLTAGE (V)

F I G. 15

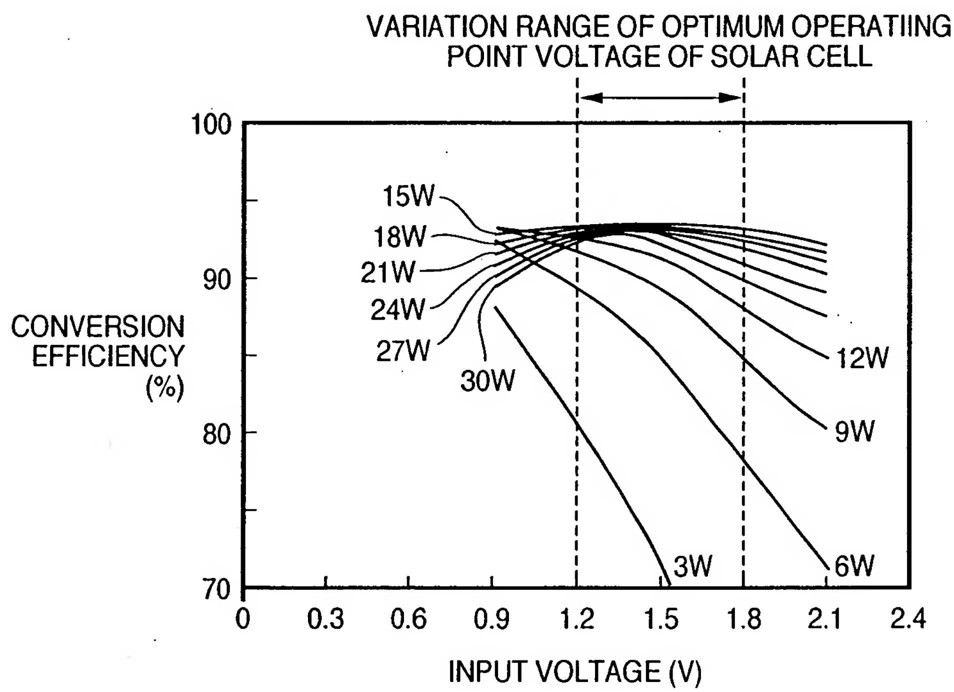
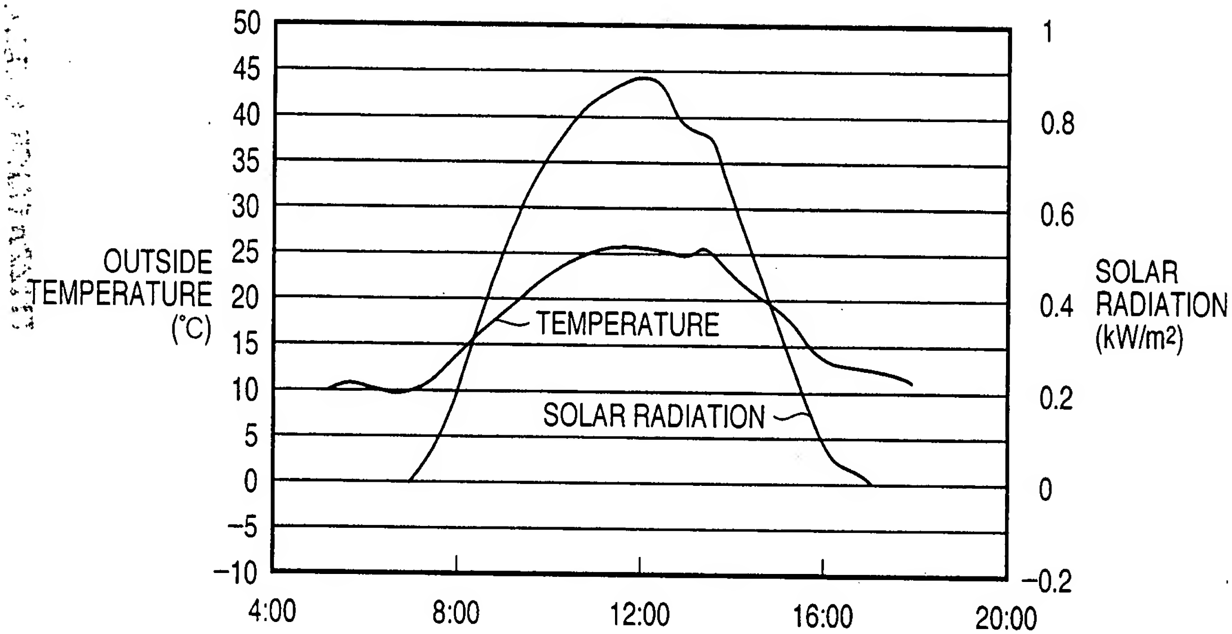

VARIATION RANGE OF OPTIMUM OPERATIING POINT VOLTAGE OF SOLAR CELL
CONVERSION EFFICIENCY (%)
100
90
80
70
15W
18W
21W
24W
27W
30W
12W
9W
6W
3W
0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
INPUT VOLTAGE (V)

FIG. 16



OUTSIDE TEMPERATURE (°C)
50
45
40
35
30
25
20
15
10
5
0
−5
−10
4:00
8:00
12:00
16:00
20:00
TEMPERATURE
SOLAR RADIATION
1
0.8
0.6
0.4
0.2
0
−0.2
SOLAR RADIATION (kW/m2)

FIG. 17

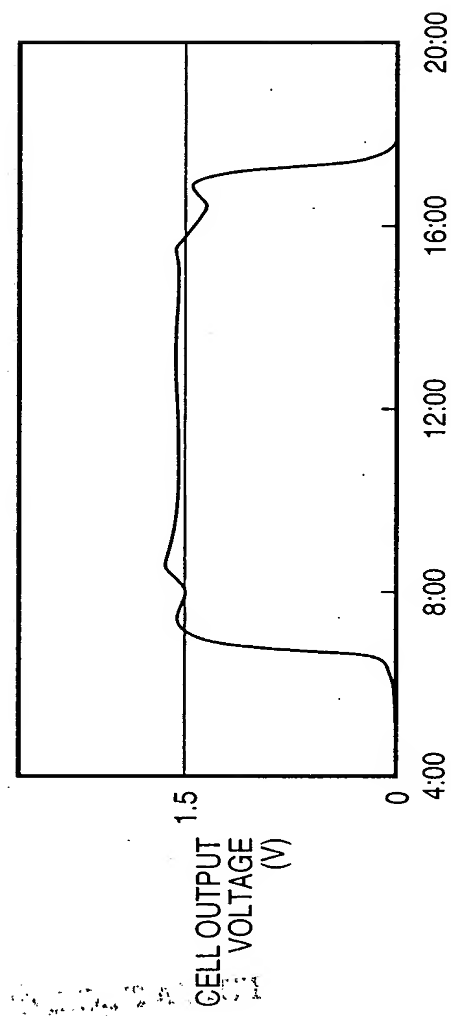
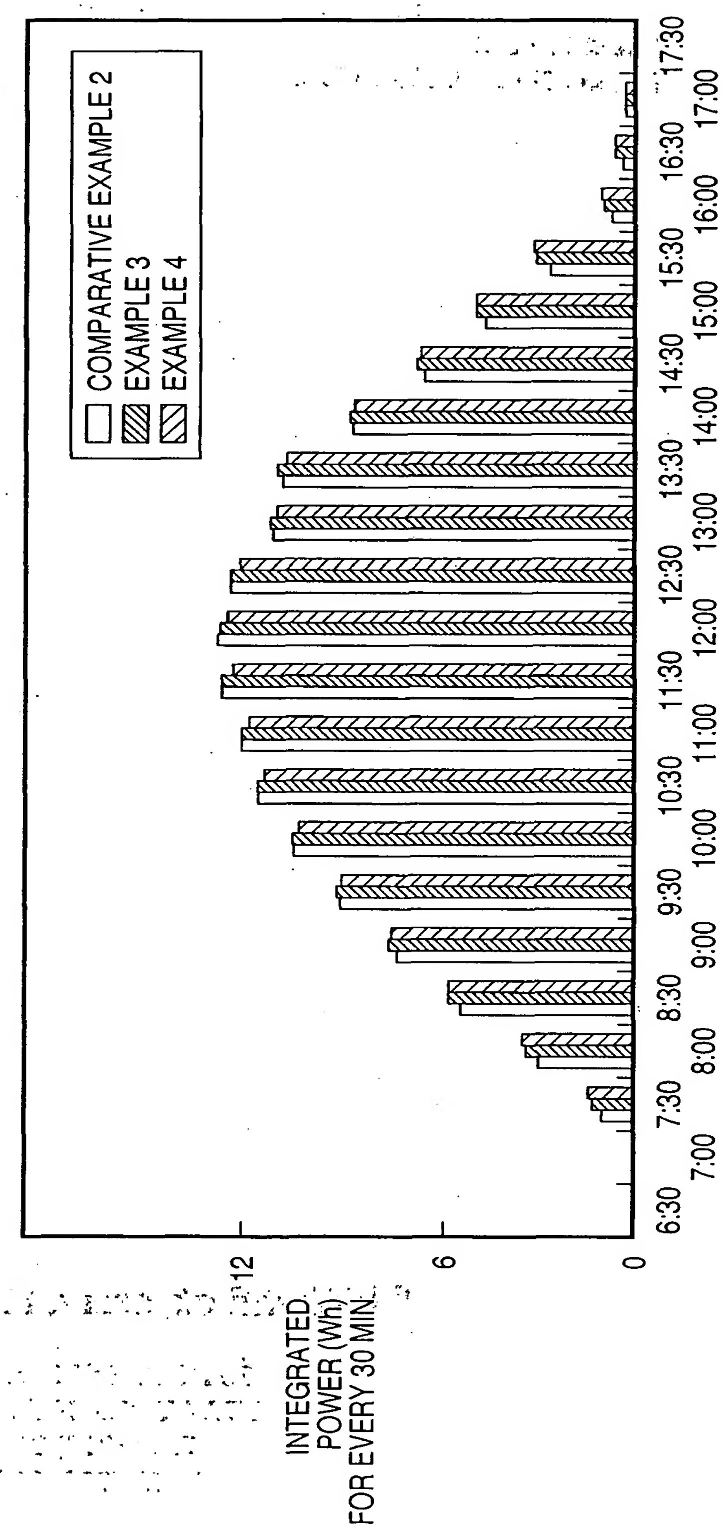
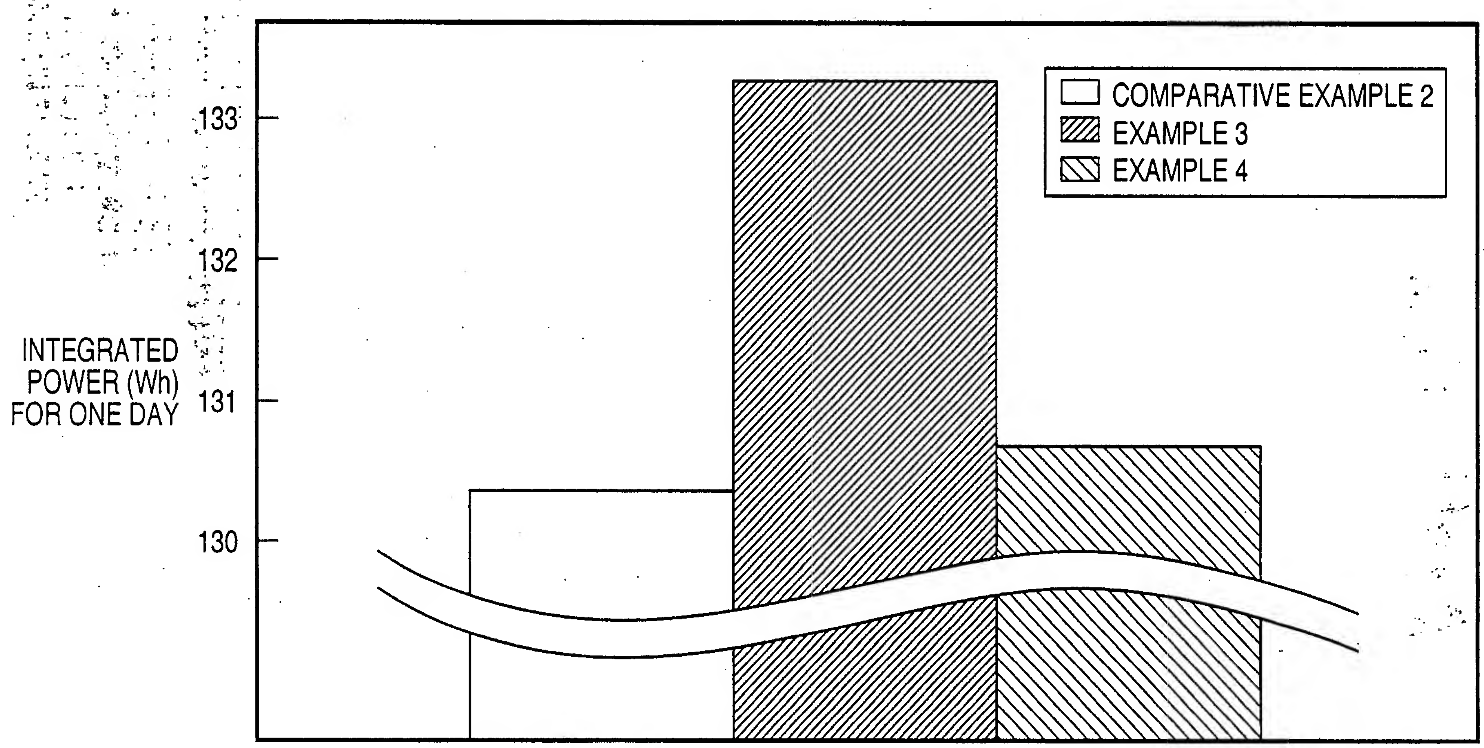


FIG. 18



COMPARATIVE EXAMPLE 2
EXAMPLE 3
EXAMPLE 4
INTEGRATED POWER (Wh) FOR EVERY 30 MIN.
0
6
12
6:30
7:00
7:30
8:00
8:30
9:00
9:30
10:00
10:30
11:00
11:30
12:00
12:30
13:00
13:30
14:00
14:30
15:00
15:30
16:00
16:30
17:00
17:30

FIG. 19


INTEGRATED
POWER (Wh)
FOR ONE DAY
133
132
131
130
COMPARATIVE EXAMPLE 2
EXAMPLE 3
EXAMPLE 4

F I G. 20

CORE
MATERIAL : FERRITE SHAPE : EP CORE EFFECTIVE SECTIONAL AREA : 33.9mm^2 EFFECTIVE MAGNETIC PATH LENGTH : 28.5mm
COIL
PRIMARY WINDING : 2 TURNS × 2 (PUSH-PULL) MATERIAL : FLAT TYPE COPPER WIRE, WINDING RESISTANCE 9.2mΩ SECONDARY WINDING : 400 TURNS MATERIAL : URETHANE-INSULATED MAGNET WIRE, DIAMETER 0.14mm

FIG. 21

CORE
MATERIAL : FERRITE SHAPE : EP CORE EFFECTIVE SECTIONAL AREA : $33.9mm^2$ EFFECTIVE MAGNETIC PATH LENGTH : 28.5mm
COIL
PRIMARY WINDING : 3 TURNS × 2 (PUSH-PULL) MATERIAL : FLAT TYPE COPPER WIRE, WINDING RESISTANCE 20.7mΩ SECONDARY WINDING : 600 TURNS MATERIAL : URETHANE-INSULATED MAGNET WIRE, DIAMETER 0.115mm

FIG. 22

CORE
MATERIAL : FERRITE SHAPE : EP CORE EFFECTIVE SECTIONAL AREA : 33.9mm^2 EFFECTIVE MAGNETIC PATH LENGTH : 28.5mm
COIL
PRIMARY WINDING : 1 TURN × 2 (PUSH-PULL) MATERIAL : FLAT TYPE COPPER WIRE, WINDING RESISTANCE 2.3mΩ SECONDARY WINDING : 200 TURNS MATERIAL : URETHANE-INSULATED MAGNET WIRE, DIAMETER 0.2mm

FIG. 23

CORE
MATERIAL : FERRITE SHAPE : EP CORE EFFECTIVE SECTIONAL AREA : $33.9 mm^2$ EFFECTIVE MAGNETIC PATH LENGTH : 28.5mm
COIL
PRIMARY WINDING : 2 TURNS × 2 (PUSH-PULL) MATERIAL : FLAT TYPE COPPER WIRE, WINDING RESISTANCE 9.2mΩ SECONDARY WINDING : 266 TURNS MATERIAL : URETHANE-INSULATED MAGNET WIRE, DIAMETER 0.17mm

FIG. 24

CORE
MATERIAL : FERRITE SHAPE : EP CORE EFFECTIVE SECTIONAL AREA : $33.9mm^2$ EFFECTIVE MAGNETIC PATH LENGTH : 28.5mm
COIL
PRIMARY WINDING : 3 TURNS × 2 (PUSH-PULL) MATERIAL : FLAT TYPE COPPER WIRE, WINDING RESISTANCE 20.7mΩ SECONDARY WINDING : 399 TURNS MATERIAL : URETHANE-INSULATED MAGNET WIRE, DIAMETER 0.14mm

FIG. 25

CORE
MATERIAL : FERRITE SHAPE : EP CORE EFFECTIVE SECTIONAL AREA : $33.9mm^2$ EFFECTIVE MAGNETIC PATH LENGTH : 28.5mm
COIL
PRIMARY WINDING : 1 TURN × 2 (PUSH-PULL) MATERIAL : FLAT TYPE COPPER WIRE, WINDING RESISTANCE 2.3mΩ SECONDARY WINDING : 133 TURNS MATERIAL : URETHANE-INSULATED MAGNET WIRE, DIAMETER 0.24mm